LISTING OF CLAIMS:

Agent for Applicant requests that the following amendments be made to the claims without adding any new subject matter. The additions thereto are underlined, while the deletions therefrom are contained in double square brackets or strikethrough.

1. (Currently Amended) An airborne time domain electromagnetic surveying system comprising:

(a) A tow assembly for connection to an aircraft, the tow assembly including:

(i) A flexible support frame including:

(A) A transmitter section having a central axis and including a transmitter means; and

(B) A receiver section including a receiver support frame and a sensor means;

wherein the receiver section is substantially aligned with the central axis of the transmitter section; and

wherein the sensor means is flexibly connected to the receiver support frame for vibration reduction;

(b) A transmitter driver linked to the transmitter section in a spaced apart relationship from the transmitter section, such spaced apart relationship being operable to reduce noise, wherein the transmitter driver and transmitter section in cooperation enable the system in an "ON" interval to generate an earthbound electromagnetic field pulse effective for geological surveying, and wherein an earth response to the electromagnetic field pulse is sensed in an "OFF" interval by the sensor means; and

(c) A ~~non-linear~~ dual-mode gain amplifier linked to the sensor means that enables low linear gain amplification during the "ON" interval and switches to non-bucking high linear gain amplification ~~of the earth response to the electromagnetic field pulse~~during the "OFF" interval, wherein the switch is rapidly achieved.

2. (Canceled)

3. (Currently Amended) An airborne time domain electromagnetic surveying system as claimed in claim 1, wherein the transmitter driver and the ~~non-linear~~dual-mode gain amplifier are connected to a computer including a control program ~~for controlling the functions of the system of the present invention~~, wherein the computer is adapted to activate the pulse to define [[an]]the "ON" interval, and to measure the earth response by operation of the sensor means in [[an]]the "OFF" interval so as to generate selected survey data, which survey data is stored to a memory linked to the computer.

4. (Previously Presented) An airborne time domain electromagnetic surveying system as claimed in claim 3, wherein the transmitter section includes a sensor for measuring signal during the "ON" interval, and the computer is adapted to generate selected survey data from the "ON" interval signal measurements.

5. (Currently Amended) An airborne time domain electromagnetic surveying system as claimed in claim 1[[;]], wherein the transmitter section includes a generally flexible transmitter support frame, which transmitter support frame supports a transmitter coil.

6. (Previously Presented) An airborne time domain electromagnetic surveying system as claimed in claim 5, wherein the transmitter section consists of a plurality of interconnectable transmitter section frame members, such that the transmitter section can be assembled and disassembled.

7. (Previously Presented) An airborne time domain electromagnetic surveying system as claimed in claim 6, wherein the plurality of interconnectable transmitter section frame members enable the surface area of the transmitter section to be altered for different applications of the system.

8. (Previously Presented) An airborne time domain electromagnetic surveying system as claimed in claim 1, wherein the structure of the support frame enables a relatively large effective surface area with reduced drag during flight.

9. (Previously Presented) An airborne time domain electromagnetic surveying system as claimed in claim 1, wherein the tow assembly is connected to the aircraft by means of at least one cable means connected to the transmitter section at a plurality of points.

10. (Previously Presented) An airborne time domain electromagnetic surveying system as claimed in claim 9, wherein the tow assembly is connected to the aircraft by means of a central cable at a first end connected to the aircraft, the central cable also including a second end opposite to the first end, and wherein a plurality of connecting cables are connected between the second end of the central cable and a plurality of points generally evenly distributed along the circumference of the transmitter section.

11. (Canceled)

12. (Currently Amended) An airborne time domain electromagnetic surveying system as claimed in claim [[11]]5, wherein the receiver support frame is connected to the transmitter support frame by means of a plurality of connecting cables.

13. (Previously Presented) An airborne time domain electromagnetic surveying system as claimed in claim 12, wherein the connecting cables are generally evenly distributed along the circumference of each of the receiver support frame and the transmitter support frame.

14. (Canceled)

15. (Currently Amended) An airborne time domain electromagnetic surveying system as claimed in claim [[14]]1, wherein the sensor ~~coil~~means is elastically suspended inside the receiver support frame.

16. (Currently Amended) An airborne time domain electromagnetic surveying system as claimed in claim [[11]]1, wherein the receiver support frame consists of a plurality of interconnectable receiver section frame members.

17. (Previously Presented) An airborne time domain electromagnetic surveying system as claimed in claim 16, wherein the interconnectable receiver section frame members of the receiver support frame can be assembled and disassembled.

18. (Previously Presented) An airborne time domain electromagnetic surveying system as claimed in claim 6, wherein the transmitter section frame members define a polygonal profile.

19. (Previously Presented) An airborne time domain electromagnetic surveying system as claimed in claim 1, wherein the transmitter driver is located in the aircraft and is connected by a transmission cable to the transmitter section.

20. (Previously Presented) An airborne time domain electromagnetic surveying system as claimed in claim 1, wherein the support frame further includes a stabilizer for stabilizing the movement of the tow assembly during flight.

21. (Previously Presented) An airborne time domain electromagnetic surveying system as claimed in claim 1, wherein the aircraft is a helicopter.

22. (Currently Amended) An airborne time domain electromagnetic surveying system as claimed in claim 1, wherein residual currents circulate in the transmitter means during the "OFF" interval, and wherein the system further comprises a current measuring unit that measures the residual currents ~~circulating in the transmission means during the "OFF" interval~~ thereby enabling the system to minimize distortions caused thereby to the earth response to the electromagnetic field pulse.

23. (Currently Amended) A method of producing survey data comprising the steps of:

(a) flying an aircraft with a lightweight survey tow assembly connected thereto, the tow assembly including:

(i) A flexible support frame including:

(A) A transmitter section in including a transmission means; and

(B) A receiver section including a sensor means;

(ii) A transmitter driver linked to the transmitter means in a spaced apart relationship from the transmitter section, such spaced apart relationship being operable to reduce noise, wherein the transmitter driver and transmitter means in cooperation enable the system to generate an earthbound electromagnetic field pulse effective for geological surveying; and

(iii) A ~~non-linear~~dual-mode gain amplifier linked to the sensor means that enables non-bucking high linear gain amplification of the earth response to the electromagnetic field pulse;

Wherein the receiver section is substantially aligned with the central axis of the transmitter section[[.]];

(b) Generating an earthbound electromagnetic field pulse effective for airborne geological surveying in an "ON" interval;

(c) Sensing the earth response to the electromagnetic field response in an "OFF" interval;

(d) Amplifying the earth response in the "OFF" interval by means of ~~a non-linear~~ the dual-mode gain amplifier wherein the amplification switches to low linear gain during the "ON" interval; and

(e) Obtaining geophysical survey data from the amplified electromagnetic field response.

24. (Currently Amended) The method claimed in claim [[21]]23, further comprising ~~the step of~~ collecting in-phase information in the "ON" interval by means of a receiver means linked to the transmitter section.

25. (Currently Amended) The method claimed in claim [[21]]23, further comprising ~~the step of~~ adjusting the surface area of the transmitter section for specific survey applications.

26. (Currently Amended) The method claimed in claim [[21]]23, further comprising ~~the step of~~ adding additional receiver coils for multi-dimensional surveying.

27. (Currently Amended) The method as claimed in claim [[21]]23, wherein said sensor means comprise a sensor loop having loop turns, the method further comprising ~~the further step of~~ increasing the number of loop turns to suit the particular geophysical targets.

28. (Currently Amended) The method of claim [[21]]23, wherein residual currents circulate in the transmitter coil during the "OFF" interval, the method further comprising ~~the further step of~~ measuring the[[,]] residual currents ~~circulating in the transmission means~~

~~during the "OFF" interval~~ by means of a current measuring unit, and thereby enabling distortions caused thereby to the earth response to the electromagnetic field pulse to be minimized.

29. (Currently Amended) A computer program for use on a computer for controlling a non-bucking airborne survey system, the computer being connected to a transmitter driver linked to a transmitter means, a receiver and a ~~non-linear~~dual-mode gain ~~preamplifier~~amplifier, the computer program comprising:

(a) A computer readable medium;

(b) Computer instructions accessible to the computer readable medium for:

(i) activating the transmitter driver and transmitter means to transmit an earthbound electromagnetic field pulse effective for airborne geological surveying in an "ON" interval;

(ii) processing the earth response to the electromagnetic field response in an "OFF" interval;

(iii) amplifying the earth response by activating the ~~non-linear~~dual-mode gain amplifier during the "OFF" interval, wherein the amplification switches to low linear gain during the "ON" interval; and

(iv) collecting the amplified earth response signal data and processing said signal data to derive geophysical survey data.

30. (New) An airborne time domain electromagnetic surveying system comprising:

(a) A tow assembly for connection to an aircraft, the tow assembly including:

(i) A flexible support frame including:

(A) A transmitter section including a transmitter means; and

(B) A receiver section including a sensor means;

(b) A transmitter driver linked to the transmitter section in a spaced apart relationship from the transmitter section, such spaced apart relationship being

operable to reduce noise, wherein the transmitter driver and transmitter section in cooperation enable the system to generate an earthbound electromagnetic field pulse effective for geological surveying; and

(c) A gain amplifier linked to the sensor means that enables non-bucking high linear gain amplification of the earth response to the electromagnetic field pulse;

wherein the receiver section includes a receiver support frame disposed generally along the central axis of the transmitter section;

wherein the receiver support frame is connected to the transmitter support frame by means of a plurality of connecting cables; and

wherein the connecting cables are generally evenly distributed along the circumference of each of the receiver support frame and the transmitter support frame.

31. (New) An airborne time domain electromagnetic surveying system comprising:

(a) A tow assembly for connection to an aircraft, the tow assembly including:

(i) A flexible support frame including:

(A) A transmitter section including a transmitter means; and

(B) A receiver section including a sensor means;

(b) A transmitter driver linked to the transmitter section in a spaced apart relationship from the transmitter section, such spaced apart relationship being operable to reduce noise, wherein the transmitter driver and transmitter section in cooperation enable the system to generate an earthbound electromagnetic field pulse effective for geological surveying; and

(c) A gain amplifier linked to the sensor means that enables non-bucking high linear gain amplification of the earth response to the electromagnetic field pulse;

wherein the receiver section includes a receiver support frame disposed generally along the central axis of the transmitter section;

wherein the receiver support frame consists of a plurality of interconnectable receiver section frame members; and

wherein the interconnectable receiver section frame members of the receiver support frame can he assembled and disassembled.

32. (New) An airborne time domain electromagnetic surveying system comprising:

(a) A tow assembly for connection to an aircraft, the tow assembly including:

(i) A flexible support frame including:

(A) A transmitter section including a transmitter means; and

(B) A receiver section including a sensor means;

(b) A transmitter driver linked to the transmitter section in a spaced apart relationship from the transmitter section, such spaced apart relationship being operable to reduce noise, wherein the transmitter driver and transmitter section in cooperation enable the system to generate an earthbound electromagnetic field pulse effective for geological surveying; and

(c) A gain amplifier linked to the sensor means that enables non-bucking high linear gain amplification of the earth response to the electromagnetic field pulse;

wherein an electromagnetic field pulse effective for airborne geological surveying is generated in an "ON" interval, an earth response to the electromagnetic field response is sensed in an "OFF" interval and residual currents circulate in the transmitter means during the "OFF" interval, wherein the system further comprises a current measuring unit that measures the residual currents thereby enabling the system to minimize distortions caused thereby to the earth response to the electromagnetic field pulse.

33. (New) A method of producing survey data comprising the steps of:

(a) flying an aircraft with a lightweight survey tow assembly connected thereto, the tow assembly including:

(i) A flexible support frame including:

(A) A transmitter section in including a transmission means; and

(B) A receiver section including a sensor means;

(ii) A transmitter driver linked to the transmitter means in a spaced apart relationship from the transmitter section, such spaced apart relationship being operable to reduce noise, wherein the transmitter driver and transmitter means in cooperation enable the system to generate an earthbound electromagnetic field pulse effective for geological surveying; and

(iii) A gain amplifier linked to the sensor means that enables non-bucking high linear gain amplification of the earth response to the electromagnetic field pulse;

Wherein the receiver section is substantially aligned with the central axis of the transmitter section;

(b) Generating an earthbound electromagnetic field pulse effective for airborne geological surveying in an "ON" interval;

(c) Sensing the earth response to the electromagnetic field response in an "OFF" interval;

(d) Amplifying the earth response by means of a gain amplifier; and

(e) Obtaining geophysical survey data from the amplified electromagnetic field response; and

(f) Measuring residual currents circulating in the transmission means during the "OFF" interval by means of a current measuring unit, and thereby enabling distortions caused thereby to the earth response to the electromagnetic field pulse to be minimized.

34. (New) A tow assembly apparatus for airborne time domain electromagnetic surveying comprising:

(a) A flexible support frame including:

(i) A transmitter section having a central axis and consisting of a plurality of interconnectable transmitter section frame members, such that the transmitter section can be assembled and disassembled, and the transmitter section frame members define a polygonal profile; and

(ii) A receiver section disposed generally along the central axis of the transmitter section and consisting of a plurality of interconnectable receiver section frame members, such that the receiver section can be assembled and disassembled;

Wherein the transmitter section houses an elastically suspended transmitter coil and the receiver section houses an elastically suspended sensor loop;

Wherein the transmitter section and the receiver section are connected by means of a plurality of connecting cables evenly distributed along the circumference of each of the transmitter section and the receiver section;

Wherein the tow assembly apparatus is connected to the aircraft by means of at least one cable means connected to the transmitter section at a plurality of points; and

Wherein the structure of the flexible support frame enables a relatively large effective surface area with reduced drag during flight.

35. (New) A tow assembly apparatus as claimed in claim 34 further comprising a shell elastically suspended inside the receiver section, wherein the sensor loop is elastically suspended inside the shell.